REMARKS/ARGUMENTS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 16 – 22 and 31 - 37 are pending. Claims 31 - 37 are newly added.

Support for newly added dependent Claims 31,32, 35 and 36 can be found in the specification at least on page 3, lines 19 – 20. Support for newly added independent Claim 33 can be found in the specification on page 2, line 13 to page 3, line 29. Support for newly added dependent Claim 34 can be found in the specification at least on page 6, line 32 - page 7, line 2. No new matter is added.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102(b)

In the outstanding Office Action, Claims 16 and 19-22 were rejected under 35 U.S.C. § 102(b) as being anticipated by German Patent DE19852159 (herein "DE '159"). The Examiner kindly provided a machine language translation.

The outstanding Office Action asserts that DE '159 suggested that those skilled in the art at the time the invention was made would have formed a hybrid fiber yarn material from 50% polypropylene and 50% natural fiber to form a hybrid spun yarn. The Office Action stated the reference taught that the hybrid yarn was fed into an extrusion device wherein it was subjected to heat within the extrusion nozzle 6 which included as part of an extrusion device which supplied molten plastic to the commingled filaments from extruder 2. The Office Action asserted that the reference taught that additional extruded plastic material was added to the melted commingled filaments and that the assembly was fed through a shaping nozzle 6. The Office Action goes on to state that after being further provided with the thermoplastic material, the commingled and heated filaments were subjected to a winding

operation wherein the so formed band was wound upon a mandrel 4. The Office Action cited the machine language translation, and in particular the discussion found regarding Example 1.

In order to advance prosecution, Applicants herewith submit an English language translation of German Published Patent Application DE '159 attached as an Appendix.

Per the attached translation, DE '159 teaches:

> The method for the production of wound hollow bodies with a thermoplastic matrix of drawing off, from a spool, semifinished thread products (roving, yarn, filament, sliver, fabric, etc.), which can be processed in a winding method, impregnating them in a sheathing nozzle with a thermoplastic melt supplied by a melt extruder, and laying them on a turning mold core.
>
> The impregnation of the reinforcement semifinished products takes place, in the method in accordance with the invention, for the production of fiber-reinforced thermoplastic fiber-composite plastics in that the reinforcement semifinished products are supplied to a sheathing nozzle, operating according to the pultrusion principle (Figure 1, position 6), at the same time that the sheathing nozzle (6), adapted to a melt extruder (2), is supplied by it with the thermoplastic melt and the melt and reinforcement fiber or semifinished product are brought together.

In view of the above, Applicants respectfully submit that the thread products of DE '159 are not "heated" prior to impregnating them in a sheathing nozzle. Applicants also note that the thread products of DE '159 are not introduced as a "strip." Applicants further submit that DE '159 neither teaches nor suggests a method for manufacturing a body of revolution from a "composite strip", or a "die" used in such a method, let alone a method in which the strip is heated and introduced into a die. Accordingly DE '159 fails to teach or suggest "introducing a first heated composite strip into at least one die" as recited in Claim 16, or any other steps involving a composite strip.

In view of the above Applicants respectfully submit that Claim 16 patentably distinguishes over DE '159 and is in condition for allowance, and that dependent Claims 19 – 22 and newly added dependent Claims 31 and 32 are therefore also in condition for allowance.

Regarding Claim 19, the outstanding Office Action notes that according to DE '159, the filaments are brought into the extrusion die as a single layer of filaments and are heated to above the melting point of the plastic material in the blended fiber material. Applicants note that DE '159 nowhere refers to an extrusion die and nowhere refers to filaments in a single layer. DE '159 fails to teach or suggest forming a composite strip, let alone any of the very particular steps which are recited in Claim 19. Applicants respectfully submit that Claim 19 patentably distinguishes over DE '159 and is in condition for allowance in its own right.

Regarding Claim 20, the Office Action concludes the strip was clearly heated during the feeding of the strip into the extruder and up to the die to at least the melting point of the material used in the fiber hybrid thread material. Applicants respectfully submit that nowhere does DE '159 show thread products or any other reinforcement material being heated during feeding into an extruder, let alone a strip heated during feeding into an extruder. Applicants further note DE' 159 fails to teach or suggest a die and so fails to teach or suggest heating up to a die. Applicants therefore submit that DE '159 fails to teach or suggest a method "wherein the first strip is heated to and/or kept at a temperature as far as the die or as far as a mechanism for winding the second strip" as recited in Claim 20. Applicants respectfully submit that Claim 20 patentably distinguishes over DE '159 and is in condition for allowance in its own right.

Regarding Claim 21, the Office Action notes the reference taught the use of 50% flax fiber and 50% polypropylene in the example and one skilled in the art would have understood such would have varied dependent upon the finished product being manufactured. Applicants note that DE '159 fails to teach or suggest a composite strip, and in particular fails to teach or suggest a composite strip having a reinforcing material content with "the content being variable along the length of the strip" as recited in Claim 21. Applicants therefore respectfully submit that Claim 21 patentably distinguishes over DE '159 and is in condition for allowance in its own right.

Regarding Claim 22, the Office Action notes that the strip was impregnated with an extruder and then fed to the die at the exit of the extruder. As noted above DE '159 fails to teach or suggest a die and so does not teach or suggest "second material introduced into the die after conditioned by an extrusion device." Applicants therefore respectfully submit that Claim 22 patentably distinguishes over DE '159 and is in condition for allowance in its own right.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103(a)

In the outstanding Office Action, Claims 16 -22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over German Patent DE19852159 (herein "DE '159") in view of Saint Gobain (the internet publication dated July 30, 2001, from the website http:/www.twintex.com/fabrication-processes/tw-process.html, herein "Saint Gobain".

The Office Action states German Patent '159 suggested that those skilled in the art at the time the invention was made would have incorporated a hybrid thermoplastic/natural reinforcing fiber material in an extrusion operation wherein the

impregnated material was subsequently subjected to a filament winding process. The Office Action further states the reference suggested that the reinforcing fiber useful not only included flax fibers but also glass fiber reinforcement.

The Office Action goes on to conclude that those skilled in the art at the time the invention was made would have known to incorporate a hybrid blend of glass and polypropylene fiber material in the manufacture of the wound assembly wherein in the extrusion operation one preheated the hybrid commingled material prior to entrance into the die. The Office Action further states the reference taught that those skilled in the art would have employed this extrusion operation with the commingled yarn in order to provide a function (color or texture) to the reinforcement as well as increase the stiffness as reduce thermal expansion of the commingled fiber material.

The Office Action asserts the reference taught that the commingled material was heated with IR heating means prior to being received by the coextrusion devise which included an exit nozzle therein.

The Office Action concedes that the reference did not teach that those skilled in the art would have filament wound this product, but asserts, however, the German Patent '159 suggested that glass would have been a useful reinforcing material in the operation therein.

The Office Action concludes it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the techniques of Saint Gobain in the process of German Patent '159 in order to filament wind with a glass reinforcing fiber and a polypropylene blend.

As noted above, Applicants respectfully submit that the thread products of DE '159 are not introduced as a strip and are not heated prior to impregnating them in a sheathing nozzle. Applicants further submit that DE '159 neither teaches nor

suggests a method for manufacturing a body of revolution from a "composite strip", or a "die" used in such a method. Applicants further submit that Saint Gobain suggests methods of processing commingled rovings, but not "strip" or a "composite strip". Applicants submit that both references fail to teach or suggest a composite strip, let alone a method including the steps of "introducing a first heated composite strip into at least one die" and "introducing at least one molten material ... into the die in contact with the first composite strip to obtain a second composite strip" and "winding the second composite strip around a support rotating about its axis" as recited in Claim 16.

The basic requirements for establishing a *prima facie* case of obviousness as set forth in MPEP §2143 include 1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings, 2) there must be a reasonable expectation of success, and 3) the reference (or references when combined) must teach or suggest all of the claim limitations.

Applicants therefore submit that Claim 16 is in condition for allowance, and that dependent Claims 19 – 22 and newly added dependent Claims 31 and 32 are therefore also in condition for allowance.

With respect to Claim 17, the Office Action states Saint Gobain suggested a strip formed from glass and polypropylene filaments which are commingled together. Applicants submit that Saint Gobain neither teaches nor suggests a strip or composite strip, let alone a "composite strip formed from continuous strands formed of glass filaments and filaments of organic thermoplastic, configured to be intimately mingled" as recited in Claim 17. Applicants therefore respectfully submit that Claim 17 is in condition for allowance in its own right.

Regarding Claim 18, the Office Action concedes the references do not express a void volume of the strip, but concludes one skilled in the art would have desired to reduce the amount of void in the strip to minimal amount in order to achieve a finished product with a minimal amount of voids. Applicants submit that such a circuitous reading of desired properties into a finished product, properties neither taught nor suggested by the references, establishes that the claimed invention as recited in Claim 18 is not obvious and that Claim 18 is therefore in condition for allowance.

Regarding Claim 19, the Office Action states the reference to Saint Gobain clearly suggested that those skilled in the art would have preheated the assembly in order to facilitate suitable impregnation with the additional molten plastic material in the extruder. Applicants submit that Saint Gobain fails to teach or suggest "assembling continuous composite strands in parallel into at least one layer ... then by passing the at least one layer of heated strands through an impregnation device to homogeneously distribute the molten first thermoplastic and impregnate the reinforcing fibers therewith" as recited in Claim 19. Applicants therefore submit that Claim 19 is in condition for allowance.

Regarding Claim 20, the Office Action notes that German patent '159 as well as Saint Gobain suggested that one skilled in the art would have provided for heating above the melting point of the strip material and additionally recognized that one skilled in the art of filament winding would have understood that the material would have been heated at the point of lay down as suggest by Saint Gobain. Applicants note that DE '159 fails to teach or suggest heating of the thread products taught in DE '159 at any point before they are supplied to a sheathing nozzle. Applicants

further submit that neither reference teaches or suggests a method "wherein the first strip is heated to and/or kept at a temperature as far as the die or as far as a mechanism for winding the second strip." Applicants therefore submit that Claim 20 is in condition for allowance.

Regarding Claim 21, the Office Action notes that the references suggested a 50-50 blend of the reinforcement and matrix fibers in the assembly. Applicants submit that neither DE '159 nor Saint Gobain teach or suggest a composite strip, let alone a composite strip having a reinforcing material content with "the content being variable along the length of the strip" as recited in Claim 21. Applicants therefore submit that Claim 21 is in condition for allowance.

Regarding Claim 22, the Office Action notes both references suggested that the material would have been subjected to an extruder die at the exit of the extruder in order to shape the tape prior to filament winding the same. Applicants respectfully submit that nowhere does either reference teach or suggest using an extruder die in order to shape a tape prior to filament winding the same. Applicants therefore submit that Claim 22 is in condition for allowance.

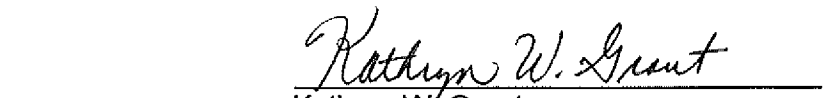
As noted in Applicants' disclosure and recited in new Claim 33, Applicants' invention advantageously may be used to vary the amount of sheathing material delivered, thus making it possible to obtain bodies having reinforcement contents that differ from a starting product which may itself advantageously not vary, an advantage neither taught nor suggest by DE '159 or Saint Gobain.

As noted in Applicants' disclosure, Applicants' invention advantageously may be used to avoid additional operations of heating and pressing of deposited strip, advantages specifically recited in newly added Claims 31, 32, 35 and 36, while

achieving uniform deposition, advantages neither taught nor suggest by DE '159 or Saint Gobain.

Consequently, in light of the above discussion, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested. If any fees are due in connection with the filing of this notice, please charge such necessary fees to Deposit Account No. 50-0568.

Respectfully submitted,



Kathryn W. Grant
Registration No. 33,238

Owens Corning
2790 Columbus Road, Bldg. 21-0
Granville, OH 43023
(740) 321-7213